

8. LIMNOTHRISSA, gen. nov.

Maxillary broad throughout its length, its dentigerous margin extending right up to the præmaxillary; latter with quite small teeth, but dentition of lower jaw, palatines, and tongue as in *Pellonula*. Abdomen in front of pelvic fins rounded, with scutes but weakly keeled; scutes behind pelvic fins strongly keeled and acutely pointed. Vertebrae 44.

Limnothrissa miodon. (Fig. 2, 1.)

Pellonula miodon (part.), Bouleng. Cat. Afr. Fish. i. p. 157, fig. 125 (1909).

Depth of body $4\frac{1}{2}$ in the length, length of head $3\frac{2}{3}$ to 4. Snout as long as diameter of eye, which is $3\frac{1}{3}$ in length of head; maxillary extending to below anterior $\frac{1}{4}$ of eye; lower jaw slightly projecting. 31 to 33 gill-rakers on lower part of anterior arch. About 45 scales in a longitudinal and 14 in a transverse series; ventral scutes 13-14+10-11. Dorsal 15; origin equidistant from end of snout and base of caudal. Anal 16-18. Pelvics below middle or anterior part of dorsal. Lateral band broad.

Tanganyika.

Four specimens, 100 to 140 mm. in total length, from Ndanvie, Tembwi, and Kasakalewa; also some young examples not included in the description.

XV.—*New Species of Tabanidæ from Australia and the Fiji Islands.* By GERTRUDE RICARDO.

THE identification of species and descriptions of new species contained in this paper are from specimens forwarded to Mr. Marshall by Dr. E. W. Ferguson and Dr. J. Burton Cleland.

One new species from the Fiji Islands, the type being in the British Museum Coll., is included. The types of all the new species will be presented to the British Museum by the Imperial Institute of Economic Entomology, with the exception of a few species belonging to the South Australian Museum and the National Museum, Victoria; in these cases, paratypes are kept for the British Museum.

PANGONINÆ.

Diatomineura ruficornis, Macquart, Dipt. Exot., Suppl. i. p. 25 (1846); Walker, List Dipt. pt. v., Suppl. i. p. 142 (1854); Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 113 (1900).

Females and males from the summit of Mt. Wellington, Tasmania.

I believe these specimens are Macquart's species, the type of which was examined by me at Lille in 1906, and the following note made of it:—"Palpi with the first joint short, the second long, flattened at base, broad, ending in a fine point. Subcallus fulvous, forehead darker. Thorax blackish, with yellowish tomentum; this describes it better than Macquart's remarks, the stripes he speaks of consist of pubescence, sides with yellow pubescence; the other details of his description are correct."

This species is very probably identical with *Diatomineura constans*, Walker, as suggested by Mr. White.

Diatomineura constans, Walker, Dipt. Saund. i. p. 15 (1850); Ricardo, Ann. & Mag. Nat. Hist. (7) v. pp. 113, 118 (1900); White, Royal Soc. Tasmania, 1915, pt. ii., Diptera Brachycera of Tasmania, p. 20.

Nine females from Waratah, Tasmania (*Lea*).

One female from Hobart (*Lea*).

Diatomineura auriflva, Donovan, Gen. Illustr. Ent. Hym. et Dipt. (1805) [*Tabanus*]; Wied. Aus-zweif. Ins. i. p. 194 (1848) (*Pangonia*); Ricardo, Ann. & Mag. Nat. Hist. (7) v. pp. 112, 119 (1900); id. (8) xvi. p. 27 (1915); White, Royal Soc. Tasmania (1915), pt. ii., Diptera Brachycera Tasmania, p. 19.

[*Pangonia solida*, Wlk.]

[*Pangonia dives*, Macq.]

One male and one female from Mt. Washington, Tasmania (*Lea*).

Two males and one female from Devonport, Tasmania (*Lea*).

Diatomineura brevirostris, Macq. Dipt. Exot., Suppl. iv. p. 326 (1842); Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 113 (1900); id. (8) xvi. p. 29 (1915).

Two females from Dorrigo, New South Wales (*W. Heron*).

Six females from Clarence River, New South Wales (A. & F. R. Zietz).

Diatomineura testacea, Macquart, Dipt. Exot. i. p. 103 (1838); Walker, List Dipt. pt. v., Suppl. i. p. 145 (1854); Ricardo, Ann. & Mag. Nat. Hist. (8) xvi. p. 31 (1915).

One female from Cairns District, Queensland (Dodd).

Diatomineura abdominalis, ♀, sp. n.

Type (female) and another from Laurieton, New South Wales, 19.10.15.

A species nearly allied to *Diatomineura brevirostris*, but distinguished from it by the absence of any white or yellow haired spots on abdomen and by the first posterior cell being considerably narrowed at the border, only half open.

Length 15 mm.

Face, palpi, and *antennæ* as in *D. brevirostris*. *Forehead* parallel, also the same; the frontal callus when not denuded appears to be small, pear-shaped. *Thorax* dresden-brown with short black pubescence, no stripes are visible; shoulders with chiefly yellowish-white hairs continued on sides of thorax as far as the scutellum, but they do not quite reach the apex of scutellum; a faint white spot is visible on each side of thorax near the suture, on the dorsum. *Abdomen* amber-brown, mottled with blackish markings, smooth, shining, with very short black pubescence; sides with yellowish-white hairs; apex and sides of posterior segments paler in colour; underside paler with black spots. *Legs* reddish-yellow; the tarsi brownish, pubescence chiefly black. *Wings* clear, stigma yellowish, veins brown, no appendix; first posterior cell narrow at border, but open.

Erephopsis maculipennis, Macquart, Dipt. Exot., Suppl. iv. p. 20 (1849); Schiner, Reise Novara, Dipt. p. 99 (1868) [*Pangonia*]; Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 106 (1900); id. (8) xvi. p. 23 (1915).

A series of specimens from South Australia appear to be this species, judging from Macquart's description, though there are a few discrepancies; his type came from the East Coast of New South Wales.

The *wings* have an appendix and two brown spots, which, however, amount to little more than dark shading on the transverse veins. *Abdomen* black, at base testaceous, with

median black spots on the first two segments. *Antennæ* red, *palpi* with the second joint a little longer than the first, which is blackish; the second one reddish, black at borders, concave and broad, ending in an obtuse point.

Erephopsis lasiophthalma, Boisduval, Voyage 'Astrolabe,' Zool. ii. p. 666 (1832) [*Pangonia*]; Macquart, Suites à Buffon, i. p. 193 (1834); Walker, List Dipt. Brit. Mus. v., Suppl. i. p. 139 (1854); Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 154 (1900).

The type was described from Cape Jervis, S. Australia. *Erephopsis contigua*, Wlk., is not identical as Walker stated. *Pangonia fuliginense*, Boisduval, is from New Guinea; whether it is the same as *Erephopsis lasiophthalma* is doubtful.

Three females from Mt. Kosciusko in N.E. Victoria, and two females from Moonbar, New South Wales (*Margrave*) (1915), in Brit. Mus. Coll., belong, I believe, to this species, answering to the description by Boisduval. Whether the specimens Macquart placed under this species are identical is doubtful.

The *wings* have one dark band crossing the base of the discal cell and the apices of the basal cells, and the transverse veins at fork of third vein and apex of discal cell are shaded; there is the rudiment of an appendix present; the first posterior cell is narrowed at border, but open. *Abdomen* reddish with a black median spot on the first three segments, then usually darker at the apex. *Antennæ* reddish yellow. *Palpi* same colour, very short; the second joint not much longer than the first joint, very concave. *Forehead* twice as broad anteriorly as it is at the vertex, with dark furrows above, continued to the antennæ. Walker's species has two very distinct dark bands on the wings. *E. maculipennis* differs in the wings, which are only shaded, and the first joint of palpi is dark.

Erephopsis guttata, Donovan, Illust. Ent. i., Hym. et Dipt. (1806) [*Tabanus*].

One female from Queensland.

Erephopsis gibbula, Walker, List Dipt. i. p. 140 (1848); Ricardo, Ann. & Mag. Nat. Hist. (7) v. pp. 112, 117 (1900); id. (8) xvi. p. 22 (1915).

Five females from Warren River, West Australia.

Erephopsis aureohirta, Ricardo, Ann. & Mag. Nat. Hist. (7) v. pp. 112, 116, pl. i. fig. 10 (1900); id. (8) xvi. p. 23 (1915).

Two females from Queensland.

Erephopsis doddi, ♀, sp. n.

Type (female) and others from Warren River, West Australia (*W. D. Dodd*). The type is in the South Australian Museum.

A species with shaded transverse veins on the wings. Abdomen testaceous at base with median black spots and blackish at apex and greyish or reddish segmentations. Antennæ blackish. Palpi very small, short, and concave. Legs testaceous and blackish.

Length 15 mm.

Face reddish, with grey tomentum and long black hairs, some white ones intermixed. Beard yellowish white. Palpi testaceous, the first joint with long black hairs, the second one conical and concave with curved upper border, and a few short black hairs at apex. Antennæ black, the first two joints with long black hairs. Forehead reddish brown with grey tomentose sides and with black thick pubescence, broadest anteriorly, being quite a third broader than at vertex; ocelli distinct. Thorax blackish with two narrow, grey, tomentose stripes on anterior half of dorsum only; pubescence as in *E. gemina*, Walker. Abdomen very similar to this last species, the third segment with a black spot similar to the one on the second segment; hairs on sides chiefly white, black on the third, fourth and fifth segments; underside bright testaceous with a few white hairs. Legs testaceous, but blackish on the upper sides of femora; pubescence black. Wings with the first posterior cell closed or slightly open.

Pelecorrhynchus cristatoides, Walker, List Dipt. Brit. Mus. i. p. 193 (1848) [*Silvius*]; Ricardo, Ann. & Mag. Nat. Hist. (7) v. p. 102 (1900); White, Royal Soc. Tasmania (1915), pt. ii., Diptera Brachycera, p. 22.

One male from Huron River, Tasmania (*Lea*).

Genus SILVIUS.

Mr. Taylor has lately forwarded me a copy of his paper (Proceedings Linnean Soc. of New S. Wales, 1915, vol. xl.

pt. 4, Nov. 24th), containing eight new species of this genus, which, with the four new species named by me in the *Ann. & Mag. Nat. Hist.* (8) xvi., Oct. 1915, brings the known species occurring in Australia to twenty. Seven new species are now added, which are all distinct from those described by Mr. Taylor, judging from his descriptions.

Silvius grandis, ♀. sp. n.

Type (female) and another from Fortescue River, Hamersley Range, North-West Australia, and another in the Brit. Mus. Coll. from N. Australia (*J. R. Eelsey*), 57. 13. 4—this latter in bad preservation. The type is in the South Australian Museum.

A large dark brown species: antennæ, palpi, and legs blackish. Abdomen with white-haired segmentations.

Length 15 mm.

Face blackish, covered with grey tomentum and with some white hairs. *Palpi* similar to those of a species of *Tabanus*; large, black, stout at base, ending in a point. Beard scanty, white. *Antennæ* black, the third joint wide at its base, the first two joints with black hairs. *Eyes* bare. *Forehead* narrow, and narrower anteriorly than at vertex; frontal callus narrow, pear-shaped, with long lineal extension; ocelli distinct; traces of golden-coloured pubescence on forehead. *Thorax* (denuded) blackish brown, some white hairs at sides and on shoulders. *Abdomen* blackish brown, the segmentations white-haired, the other female has the first and second segments partly yellowish brown; traces of grey tomentum appear on segments; pubescence on abdomen black; underside blackish, with white-haired segmentations. *Legs* blackish brown with black pubescence, the tibiæ more reddish brown. *Wings* greyish, slightly tinged yellowish brown; veins and stigma yellowish; no appendix.

Silvius fuscipennis, ♀, sp. n.

Type (male) from Claudie River, Queensland (*T. A. R.*).

Type (female) from Cape York, N. Queensland (*Macgillivray*).

Three females from Claudie River and one female from Cape York.

The types are in the Nat. Museum, Victoria.

A species apparently belonging to this genus, to be recognized at once by the brown wings with one irregular clear band and two clear spots.

Length 13–16 mm.

Female.—*Face* covered with yellowish-grey tomentum and with a few white hairs. *Beard* white. *Palpi* fairly stout, reddish yellow or darker in colour. *Antennæ* blackish, the first two joints rather large with black hairs, the third broad at its base. *Eyes* bare. *Forehead* narrow, but a little wider anteriorly, the frontal callus black, club-shaped, with an extension not reaching the vertex; forehead blackish with yellowish-grey tomentum. *Thorax* and *scutellum* blackish brown. *Abdomen* broad, blackish with narrow reddish-yellow bands; underside the same, but more reddish brown. *Legs* blackish. *Wings* sepia, the pale irregular band crosses the bases of the first submarginal, the first posterior, the discal, the fourth and fifth posterior cells; there is a small clear spot at the base of the fork of the third longitudinal vein, and a larger one on the apex of the discal cell, embracing the base of the second and third posterior cells; stigma dark brown; wing at base somewhat pallid.

In the female from Claudie River the palpi are blackish, the abdomen on the first four segments is yellowish with a black spot in the centre of each segment, the remaining segments blackish with yellow segmentations; underside yellowish with broad whitish segmentations, darker at apex.

Male somewhat different from the female in the colouring of the *abdomen*, which has black spots in the centre of each of the first three segments, and the apical segments are entirely black; pubescence on the yellow parts yellow, black elsewhere; underside identical. Sides of *thorax* with bright reddish-yellow hairs, dorsum deep black. *Scutellum* the same, with black hairs. *Wings* paler brown than in the female.

Silvius nigripennis, ♀, sp. n.

Type (female) and another female from Claudie River, North Queensland (*J. A. Kershaw*), 11/12 and 2/13. One female from same place, 28. 1. 14.

The type is in the National Museum, Victoria.

A species rather *Tabanus*-like in appearance, and very similar to *Silvius grandis*, sp. n., in all particulars, except the wings; easily distinguished by its almost wholly brown wings and black abdomen with white bands.

Length, type, $16\frac{1}{2}$ mm., the others 14 and 17 mm.

Face flat in centre, covered with grey tomentum and with white pubescence. *Palpi* black, rather stout on their whole length, ending in a short point. *Antennæ* black, broad at base of third joint, *Tabanus*-like in shape. *Forehead* slightly

broader anteriorly, about four times as long as it is broad, covered with grey tomentum; frontal callus brown, pear-shaped, with short lineal extension; pubescence scanty, white; ocelli distinct. *Thorax* blackish, covered with grey tomentum; pubescence black, with some appressed white hairs. *Scutellum* same colour. *Abdomen* black with black pubescence; bands of white hairs on posterior borders of the first four segments, not reaching the middle of segment; underside black with three complete white bands. *Legs* black with black pubescence. *Wings* dark brown, pale at the extreme apex, with a clear streak below the stigma, and the extreme edge of the posterior border of wing also pale.

Silvius fergusonii, ♀, sp. n.

Type (female) from Nelson Island, Hawkesbury River, New South Wales, 26. 2. 16.

This handsome species, named after the donor, is nearly allied to *Silvius nigripennis*, sp. n., from the northern part of Australia; but is distinguished by the pale base of wing. These two species, together with *Silvius gaudis*, sp. n., form a group unlike the typical forms by their larger size and dark abdomens marked with paler segmentations, and by their coloured wings.

This species measures 17 mm.

Face covered with light ashy-grey tomentum and with some silvery-white hairs in centre of face, and longer, more numerous ones in the furrows between the face and the cheeks, joining the beard of same colour. *Palpi* blackish, with some ashy-grey tomentum, and short dark hairs; they are large and stout with an obtuse point. *Antennæ* black, the first two joints with black hairs, the third large and wide at the base with a distinct angle. *Subcallus* same colour as face. *Forehead* same colour, narrow, parallel, about six times as long as it is broad anteriorly; the frontal callus black, shining, not reaching the eyes, pear-shaped, with a long stout lineal extension reaching the ocelli. *Thorax* blackish brown, somewhat shining, with two grey tomentose stripes and grey at sides; pubescence chiefly black; some white hairs on the stripes; pubescence on shoulders long, black, with tufts of white hairs at base of wings. *Scutellum* the same colour. *Abdomen* blackish brown, the first two segments with broad grey tomentose bands, which are represented on the remaining segments only at the sides; these bands have white hairs, thickest at

the sides, pubescence elsewhere black; underside is identical, but the grey bands are present on every segment for their whole width. *Legs* black, the fore coxæ with whitish tomentum and pubescence. *Wings* blackish brown, darkest on the fore border in the submarginal cells, becoming paler at apex and on posterior border, and almost clear in the basal, anal, and axillary cells; stigma blackish; veins brown.

It is distinguished from *Silvius nigripennis* by the pale base of wing, and by the shape of the frontal callus and forehead.

Silvius niger, ♀, sp. n.

Type (female) from Helensburgh, New South Wales, 9.3.15. Was resting on branch of low shrub; when disturbed it circled round my head, evidently seeking to bite (*E. W. F.*).

A small robust black species, with a broad abdomen and clear wings. Eyes slightly pubescent. Antennæ and palpi dull reddish yellow. Legs blackish.

Length 11 mm.

Face covered with brownish tomentum, paler on cheeks, and with some dark hairs in the centre; on the cheeks they are much thicker and long, increasing in length as they attain the bases of cheeks. Beard same colour. *Palpi* reddish yellow, curved on their upper edges, which are clothed with a distinct fringe of black hairs, the lower edges have a similar fringe; they are somewhat stout at base, ending in an obtuse point. *Antennæ* rather a darker shade than the palpi, the first two joints with black hairs, the third joint with a very few at the base and on the extreme tip; the tooth represented by an obtuse angle. *Forehead* same colour as face, with black pubescence, parallel; the frontal callus dark brown, very narrow, keel-like. *Ocelli* very distinct. *Thorax* sepia, with two broad grey tomentose stripes and grey sides; a few scattered white hairs on dorsum; long black hairs on the grey tomentose shoulders. *Scutellum* a little darker. *Abdomen* blackish, grey tomentum on the first segment; on the second, third, and fourth segments appear short white hairs on the sides and in the middle, not, however, joining each other to form a band; pubescence elsewhere black; segmentations with traces of grey tomentum; underside black with very narrow white-haired segmentations. *Legs* black; knees reddish yellow, the tibiæ obscurely so; pubescence black. *Wings* clear, veins yellowish brown, stigma yellowish.

Silvius montanus, ♀, sp. n.

Type (female) and another from Mt. Tambourine, Queensland (*A. M. Lea*).

The type is in the South Australian Museum.

A blackish-brown species with yellowish segmentations on abdomen and traces of median yellow spots. Antennæ reddish yellow. Legs blackish brown, some of the tibiæ yellowish.

Length 10 mm.

Face covered with greyish tomentum and with yellowish tomentum near the eyes; pubescence consists of long blackish hairs. Beard whitish. *Palpi* stout, covered with grey tomentum and with black pubescence, yellowish at extreme base. *Antennæ* with the first joint greyish, covered with black hairs, the second yellow with black hairs, the third reddish brown, apex black. *Forehead* broader anteriorly, covered with yellowish-brown tomentum, brown in the centre; the frontal callus elongate, apparently broader near the vertex; forehead covered with black hairs; ocelli distinct. *Eyes* bare. *Thorax* reddish brown with two grey stripes, most distinct anteriorly, covered with greyish-yellow hairs and with black pubescence intermixed, and longer black hairs at sides. *Scutellum* brown, with black hairs. *Abdomen* brown; the segmentations widely pale yellow, with white hairs, which form median spots; pubescence black; hairs at sides chiefly white; underside blackish, with white-haired bands. *Legs* blackish, the fore and mid tibiæ obscurely yellowish, the hind tibiæ reddish brown; pubescence on legs black. *Wings* greyish, the transverse veins shaded, the other ones faintly shaded; no appendix; stigma yellowish; veins brown.

Silvius insularis, ♀, sp. n.

Type (female) and another from Bathurst Island, N. Territory.

The type is in the South Australian Museum.

A small narrow blackish-brown species, with a greyish tomentose stripe on abdomen; legs pale yellow, the femora darker. *Palpi* long, narrow, with truncated tips.

Length 10 mm.

Face reddish, covered with grey tomentum, and with some short white hairs. *Palpi* yellowish, with black hairs. *Antennæ* yellowish, the first two joints with black hairs, the third wide at its base. *Forehead* almost parallel; frontal

callus blackish, quadrate, reaching the eyes, with a lineal extension, covered with grey tomentum. Ocelli distinct. *Thorax* and *scutellum* reddish brown, with white short pubescence and some grey tomentum anteriorly on thorax. *Abdomen* blackish brown, with a broad median stripe of grey tomentum and grey segmentations, and scattered white hairs on stripe and segmentations; underside dark, with grey segmentations. *Legs* with some brown colour on the femora and on apices of tibiæ and tarsi; pubescence white, with some black on tibiæ and tarsi. *Wings* clear, veins yellowish.

Silvius indistinctus, Ricardo, Ann. & Mag. Nat. Hist. (8) xvi. p. 262 (1915).

Two females from Melville Island, N. Australia (*W. D. Dodd*).

Five females from Bathurst Island, Northern Territory.

One female from Coen River, Cape York Peninsula, N. Australia (*W. D. Dodd*).

Ectenopsis australis, ♂ ♀, sp. n.

Male (type) from Milson Island, Hawkesbury River. This type is not in the Brit. Mus. Coll.

Female (type) from Sydney (*C. Gibbons*), 16. 12. 14.

A species nearly allied to *Ectenopsis vulpecula*, Wied., but distinguished from it by the very distinct stripes on thorax and by the darker, not uniform, colour of abdomen and of the face. The legs, which, however, appear to be variable in colouring in the typical species, are here reddish yellow; the tarsi dusky.

Female.—*Face* and *forehead* chamois-coloured, with some grey tomentum. *Antennæ* with the first two joints pale reddish yellow with black hairs, the third joint with the first division raw-sienna in colour, the next two divisions dusky with grey tomentum, and the remainder blackish. *Thorax* covered with yellowish-grey tomentum, with a narrow median brown mahogany stripe, becoming broader beyond the suture, and a broad one of the same colour at each side. *Scutellum* uniform brown mahogany-colour. *Abdomen* the same colour, with paler grey tomentose segmentations, developing on the second, third, and fourth segments into triangular median spots; underside almost a uniform paler shade. Appendix of wing long.

The *male* is similar, but the triangular median pale spots

of ablomen are absent. *Legs* duskier. The following note on the eyes of the male is furnished by the collector:—“Eyes brilliant green, with reddish-brown lines across at lower third; lines sharply defined below, fading above; similar line round whole eye. Eyes appear reddish brown in some lights.”

TABANUS.

Group IV.

Tabanus angusticallus, ♀, sp. n.

Type (female) and another from Melville Island, N. Australia (*W. D. Dodd*). The type is in the South Australian Museum.

A small greyish-brown species, which may be included in Group IV., as the frontal callus is only represented by a very small black line. Antennæ and legs reddish yellow.

Length $7\frac{1}{2}$ mm. (type); the other female $9\frac{1}{2}$ mm.

Face and *forehead* covered with yellowish-grey tomentum; pubescence on face consists of a few white hairs and longer brown hairs below and on cheeks. *Palpi* long and narrow, hardly incrassate at base, yellow, with short black pubescence. Beard consists of white hairs below and brown above. *Antennæ* bright red-yellow, the two first joints pale yellow with black hairs, the third joint very broad at base, with a few black hairs at angle. *Forehead* parallel, about five times as long as it is broad, with some black pubescence. *Eyes* bare. *Thorax*, *scutellum*, and *abdomen* the same colour, blackish brown, with grey tomentum, and with short black pubescence; a few yellowish hairs at base of thorax, segmentations of abdomen narrowly pale; under-side with wider yellow segmentations and white pubescence. *Legs* yellow, with black pubescence. *Wings* clear, grey; veins and stigma very pale yellow; long appendix present.

Tabanus nemotuberculatus, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 388 (1915).

Three females from Cape York.

One female from Claudie River, N. Queensland.

Tabanus nemopunctatus, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 388 (1915).

A series of females from Ycelanna, S. Australia, appear

to belong to this species, though the type came from Queensland. These females have a broader forehead, wider anteriorly, whereas in the type it is parallel.

Group VII.

Tabanus strangmanni, ♂, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 393 (1914).

One male from Cairns District (*W. D. Dodd*).

Tabanus rufinotatus, Bigot, Mém. Soc. Zool. de France, v. p. 673 (1892) (*Atylotus*); Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 392 (1914).

A series of females from Melville Island, N. Territory.

Tabanus pseudoardens, Taylor, Austr. Inst. Trop. Med. 1911, p. 66, pl. xiv. fig. 18 (1913); Austen, Ann. & Mag. Nat. Hist. (8) xiii. p. 265 (1914); Ricardo, *ibid.* (8) xiv. p. 272 (1915).

A series of females from Cairns District, Queensland.

Group VIII.

Tabanus victoriensis, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 275 (1915).

Females from Mt. Tambourine, S. Queensland.

Group IX.

Tabanus macquarti, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 277 (1915). [*Tabanus limbatinervis*, Macq. Dipt. Exot., Suppl. iv. p. 333 (1852).]

A series of females from Cairns District, Queensland.

Tabanus neogermanicus, Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 283 (1915).

A series of females from Melville Island, S. Queensland.

Tabanus clavicollisus, ♀, sp. n.

Type (female) from Milson Island, New South Wales, 10.1.15; other females from the same locality, and one female from Sydney. ("Eyes of a dull brown colour when alive": note by collector.)

The type is in the South Australian Museum.

A small species allied to *Tabanus neogermanicus*, Ricardo, but differing in the darker colour of the abdomen, and in the shape of the frontal callus which is rather distinctive for this species.

Length 11-12 mm.

Face covered with yellowish-grey tomentum, almost devoid of pubescence. Beard composed of sparse white hairs. *Palpi* long and slender, pale yellow, a little stouter on the basal half, ending in a long point; pubescence on the first long, white, on the second joint short and black. *Antenne* bright reddish yellow, dusky at the tips, the first two joints with black pubescence, the third not very wide at its base, with a slight tooth. *Forehead* and subcallus darker than the face, the latter often appearing reddish through the tomentum; the forehead with black short hairs beyond the frontal callus, which is blackish brown, not reaching the eyes; large and club-shaped, ending in a very short point, which is, however, drawn out on some of the specimens; the whole callus is long, often attaining half the length of the forehead, which is about four times as long as it is broad and is the same width throughout. *Thorax* blackish, covered with yellowish-grey tomentum and with appressed pale fulvous hairs; pubescence on the reddish shoulders black, some white hairs at sides at base of wings. *Scutellum* identical. *Abdomen* blackish brown; posterior halves of the segments with greyish tomentose bands, extending in the middle as indistinct median spots, most discernible on the second to the fifth segments; some very short white pubescence is present on the segmentations and is longer at the sides. *Legs* blackish; the femora with some grey tomentum, and at their apices reddish yellow, or almost wholly so; the tibiæ reddish yellow, dusky at their apices. *Wings* clear, stigma yellowish brown, veins brown; a short appendix present.

Dr. Ferguson states that this is a common species.

Tabanus milsonis, ♀, sp. n.

Type (female) and another from Milson Island, New South Wales. ("Occurs on the cattle, but is rare and hard to catch": note by collector.)

A medium-sized species, blackish brown, with yellow palpi and blackish antennæ. Legs dusky in colouring. Abdomen with grey tomentose bands and spots. Wings with an appendix.

Length 16 mm.

Face covered with pale tomentum and some white short hairs. Beard white. *Palpi* pale yellow, swollen on their basal half, ending in a point which is about equal in length to the basal half, some grey tomentum on this latter; pubescence black, white below. *Antennæ* blackish, the first two joints reddish, the third joint broad at its base. *Forehead* parallel, about five times as long as it is broad; the frontal callus chestnut-coloured, oblong, not reaching the eyes, with a lineal extension; forehead darker than face, with black hairs. *Thorax* blackish brown, with two narrow grey tomentose stripes and grey at the sides. *Scutellum* identical. *Abdomen* blackish brown with broad grey tomentose bands, extending into blunt triangular spots in the middle; the ground-colour under the tomentum often appears reddish, and the sides are reddish yellow; pubescence on segmentations white, and on sides, elsewhere black mixed with the white at sides, and rather long and abundant at sides; underside reddish brown with grey tomentum. *Legs* dusky in appearance, the femora with grey tomentum, the tibiae obscurely reddish; pubescence chiefly black, some white hairs on the femora and long ones on their under sides. *Wings* large, clear; veins blackish brown, with an appendix; stigma yellowish.

Group X.

Tabanus nigritarsis, Taylor, Report Austr. Inst. Tropical Medicine, 1911, p. 18 (1913); Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 288 (1915).

Two females from Northern Territory.

Tabanus sanguinarius, Bigot, Mém. Soc. Zool. de France, v. p. 675 (1892) [*Atylotus*]; Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 287 (1915).

Series of females from Mt. Tambourine, S. Queensland.

Tabanus kershawi, ♀, sp. n.

Type (female) and another from Claudie River, N. Queensland (*J. A. Kershaw*), 11/12 and 13. 2. 14.

The type is in the National Museum, Victoria.

A small black species, at once distinguished by the pale tibiae and the reddish-yellow antennæ.

Length 10 mm.

Face black, with some brown tomentum and black hairs. Palpi blackish, very stout, ending in a very short point; pubescence black. Beard black. Antennæ reddish yellow, with a very small angle on the third joint; some black hairs on the first two joints. Subcallus shining black. Forehead a third narrower anteriorly, about eight times as long as it is broad anteriorly, covered with grey and brown tomentum; frontal callus small, oblong, reaching the eyes, with a lineal extension. Eyes bare, with traces of three stripes. Thorax, scutellum, and abdomen blackish with some few appressed grey hairs on thorax and scutellum, and on segmentations of abdomen; pubescence at sides black. Legs black, the fore tibiæ whitish, darker at extreme apex, the middle tibiæ and the hind pair wholly whitish; fore tarsi black, the others almost wholly whitish. Wings clear, veins and stigma yellow; no appendix.

Group XI.

Subgenus THERIOPLECTES.

Species with pubescence on the eyes.

Tabanus regis georgii, Macquart, Dipt. Exot. i. p. 132 (1838); Ricardo, Ann. & Mag. Nat. Hist. (8) xvi. p. 276 (1915).

One female from S. Australia (*Rev. A. P. Burgess*). ("Eyes in this species are dull-coloured": note by the collector.)

Tabanus circumdatus, Walker, List Dipt. i. p. 185 (1848); Ricardo, Ann. & Mag. Nat. Hist. (8) xiv. p. 280 (1915); White, Royal Soc. Tasmania, 1915, pt. ii. p. 14.

(*Tabanus nepos*, Wlk.; *abstersus*, Wlk.; *brevidentatus*, Macq.; and *hebes*, Wlk., are all synonyms of this species.)

A series of females from Yeelanna, S. Australia, and from Swansca, Tasmania.

Tabanus cirrus, ♀; sp. n.

Female (type) from Milson Island, Hawkesbury River, New South Wales.

A stout, medium-sized, black species, distinguished by the

tufts of white hairs on the thorax at base of wing and by the white-haired fringe of scutellum.

Length 15 mm.

Face covered with ashy-grey tomentum and in the centre with long, fairly dense, white hairs. Beard white. *Palpi* yellowish with grey tomentum, stout at base, ending in a rather short point; the pubescence scanty, chiefly pale. *Antennæ* dusky, the first two joints with black hairs. *Eyes* very distinctly pubescent. *Forehead* broad, about three times as long as it is broad anteriorly, where it is distinctly wider than at vertex; forehead and subcallus a little darker than face; frontal callus bare, protuberant, almost reaching the eyes, pear-shaped, with a short lineal extension, pitchy-brown in colour; pubescence on forehead black. *Thorax* blackish brown, with two grey tomentose stripes and another on each side below the suture; shoulders reddish with black hairs; a tuft of white hairs below base of wings, and another continued to the scutellum; pubescence on dorsum black. *Scutellum* blackish brown, fringed with white hairs on its posterior border. *Abdomen* blackish brown, with broad greyish-white tomentose segmentations and traces of white hairs on them, which are distinct on the side edges of the segments; pubescence elsewhere on dorsum black. *Legs* black, the fore coxæ covered with ashy-grey tomentum and with white hairs; the tibiæ reddish yellow, black at their apices; femora and tibiæ with chiefly white pubescence. *Wings* clear, veins blackish; an appendix present; stigma brownish.

Tabanus neocirrus, ♀, sp. n.

Type (female) from Swansea, Tasmania (*Lea*), and another female from S. Australia.

The type is in the South Australian Museum.

A black species with whitish spots and segmentations on the abdomen; smaller than *Tabanus cirrus*, sp. n.

Length, type, 12 mm.; the other female 10 mm.

It differs from *Tabanus cirrus* in the following particulars:—*Palpi* slender, the long point nearly as long as the slightly incrassate basal part, covered with white pubescence. Third joint of *antennæ* broad at base. Pubescence on thorax black with many white hairs, which are long anteriorly and shorter posteriorly. *Abdomen* with a distinct stripe composed of white-haired median spots; segmentations also white-haired, thickest at the sides.

Tabanus postponens, Walker, List Dipt. i. p. 179 (1848);
Ricardo, Ann. & Mag. Nat. Hist. (8) xvi. p. 282
(1915).

Males and females from South Australia.
The femora are sometimes dark.

Tabanus pacificus, ♀, sp. n.

Type (female) and another female from Suva, Fiji Islands,
30. vi. 1910 and xii. 1910 (*Dr. P. H. Bahr*). Presented by
London School Tropical Medicine.

For list of species from these islands and surrounding
region, see Ricardo, Ann. & Mag. Nat. Hist. (8) xiii. p. 476
(1914).

A narrow-bodied dull-coloured species; palpi slender,
blackish. Antennæ dull reddish yellow. Forehead narrow.
Legs dull yellowish and brown.

Length 12 mm.

Face covered with tawny tomentum. Beard scanty,
brownish. Palpi long and slender, almost the same width
throughout; blackish with some greyish tomentum and a
few black hairs. Antennæ tawny, the first two joints yel-
lowish with black hairs, the third joint with a small but
distinct tooth on its first division at base, clothed at tip
with some black hairs: the next three divisions are equal
in length, yellowish, the last one dusky and nearly as long
as the three preceding ones together. Forehead narrow,
slightly narrower anteriorly, about six times as long as it
is broad anteriorly; frontal callus shining dark chestnut-
brown, oblong, reaching the eyes, with a long, stout, lineal
extension reaching nearly to the vertex. Thorax mummy-
brown, with some traces of grey tomentum and some
yellowish short hairs, but chiefly black ones, on the dorsum.
Scutellum the same colour with black pubescence. Abdomen
mummy-brown, appearing darker by reason of the rather
thick, short, black pubescence; there are small, whitish,
yellow-haired, median spots on each segment except the
last two, and indistinct, narrow, grey segmentations, not
visible on the apical segments, and almost absent on the
other female; underside with white-haired segmentations
and no spots. Legs mummy-brown, the femora yellowish,
pubescence on legs black. Wings grey, faintly tinged brown
on fore-border and on cross-veins; stigma and veins brown;
appendix present, but very short.